

### REMARKS

Claims 1-27 stand rejected. By this paper, Claims 1, 13, 19-20, and 24-25 have been amended. The amendments to Claims 13, 19-20, and 24-25 provide clarification and correction of clerical errors and are not narrowing amendments to overcome a cited reference. The amendments do not add new matter. Claims 28-33 have been added and do not add new matter, as the new claims are support by at least pages 20, 22-23, and 48 of Applicant's Specification. No claims have been cancelled. Thus, Claims 1-33 are presented for consideration and allowance in view of the following remarks.

### Discussion of Claims Rejection under 35 USC § 102(e)

Claims 1-3, 5, and 9-10 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2003/0039948 (Donahue).

#### Independent Claim 1

Claim 1 was rejected under § 102(e) as being anticipated by Donahue.

#### Legal Standard

A claim is anticipated *only* if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the ... claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

#### Patentability of Independent Claim 1

The Examiner states that Donahue discloses the elements of independent Claim 1 in paragraphs [0025], [0059], and [0075] of Donahue. Amended Claim 1 recites, in part, a system that generates recommendation data: a feedback generation module configured to receive the analysis data from the performance analysis module and generate the recommendation data based on the analysis data, wherein the computer network interface module receives the recommendation data from the feedback generation module and transmits the recommendation

data onto the computer network to a school official. Claim 1 has support at least in Figure 8 of the Specification.

Donahue discloses a computerized tutorial system (Figure 1, 10) that gives a user (e.g. student) a first educational lesson (Figure 1, 14), where the first lesson can be uniquely customized based on the student's profile (Figure 1, 24), followed by an assessment component (i.e., a test) (Figure 1, 18), and then a second educational lesson (Figure 1, 14) based on the results of the test. See Donahue, e.g., Figure 1, paragraph [0020], paragraph [0031], and Abstract. The second lesson can be an adaptively modified version of the first lesson, or a new lesson. See Donahue, e.g., Figure 1, 20, paragraph [0033].

Donahue provides an automated system that requires little or no teacher interaction. Donahue, paragraph [0060]. Donahue's system uses feedback to eliminate the need to use teacher interaction. Donahue, paragraph [0059]. Donahue's system (10) can use positive feedback to determine the first lesson based on the profile (24). See Donahue, e.g., Figure 1, paragraph [0034]. Donahue can also use negative feedback to form the second lesson based on the results of the test (18). See Donahue, e.g., Figure 1, paragraph [0047]. Positive and negative feedback are closed systems, because the system is closed by a feedback loop. In negative feedback, the output is processed before being fed back to the input. In positive feedback, the output is cumulative with the input. The "feedback" in Figures 1-2 of Donahue is a mathematical and circular system where an output is returned to the input to modify a lesson as stated by Donahue: "the tutorial system is designed to be automated such that little or no teacher interaction is required." Donahue, paragraph [0059].

Applicant respectfully submits that Donahue does not disclose the features of Claim 1 for the following reasons. First, Claim 1 recites wherein the computer network interface module receives the recommendation data from the feedback generation module and transmits the recommendation data onto the computer network to a school official. Applicant respectfully submits that Donahue does not transmit recommendation data onto a computer network to a school official.

The Office Action cites paragraph [0025] of Donahue, with a connection or link as disclosing the computer network as claimed by Applicant. The link is capable of interconnecting the user with a computer system through a communication device. In Figure 1 of Donahue, it

appears that communication link 26 represents the connection or link in paragraph [0025]. In Figure 1, communication link 26 appears to transmit lesson elements (i.e., interactive learning units) from database 16 to compiler block 22, but Donahue's database 16 and compiler block 22 do not disclose a school official, and therefore do not disclose a module that transmits the recommendation data onto the computer network to a school official.

The Office Action also cites paragraph [0075] which describes Figure 5 of Donahue and discloses a network based embodiment with user logins 130-134 for connecting a user to a tutorial system 138 through the Internet 136. Here, Donahue discloses a similar system as in Figures 1-2, but a number of users (i.e., students) are linked to the system via the Internet 136. In Figure 5, the tutorial system 138 receives user responses to assessment components over the Internet 136, but user responses are transmitted from the students, and do not disclose transmitting any data to a school official. Therefore, Donahue's communication link and network based embodiment do not disclose a module that transmits the recommendation data onto the computer network to a school official.

Second, in a portion of Donahue not cited against amended Claim 1, paragraphs [0060]-[0062] disclose a teacher login so that a teacher can access a user's profile or lessons. However, providing the teacher login is not the same as providing a module that transmits the recommendation data onto the computer network to a school official, because Donahue discloses a login for a teacher for optional access to the system, but not transmitting recommendation data to a school official. Rather, Donahue instead discloses the contrary, which is that "the tutorial system is designed to be automated such that little or no teacher interaction is required." Donahue, paragraph [0060]. As such, Donahue does not disclose this feature of amended Claim 1.

For all of the reasons discussed above, the Donahue reference does not teach or suggest each and every element of amended Claim 1. The applied prior art of record does not cure this deficiency in the Donahue reference. Accordingly, Applicant respectfully requests withdrawal of this rejection and allowance of Claim 1.

**Discussion of Claims Rejection under 35 USC § 103(a)**

Claims 4, 6-8, and 11-27 have been rejected under 35 U.S.C. § 103(a).

**Legal Standard**

Applicant respectfully submits that, to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. See M.P.E.P. § 2143.03; see also *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

**Patentability of Independent Claim 13**

Independent Claim 13 was rejected under § 103(a) over Donahue in view of an online press release from Today@UCI (UCI). Amended Claim 13 recites, in part, an analysis and feedback module, and provides recommendations to a school official: an analysis and feedback module configured to receive the student performance data from the education module and generate feedback data by performing an analysis of the student performance data and a school official computer system configured to receive the feedback data from the analysis and feedback module, wherein the feedback data comprises recommendations to a school official for enhancing student performance on subsequent performance evaluations. Claim 13 has support at least in Figure 7 of the Specification.

As discussed above, Donahue discloses a computerized tutorial system (Figure 1, 10) with mathematical system feedback that forms a first or second lesson based on the profile or the test results of the first lesson.

Donahue does not disclose the features of Claim 13 for at least the following reasons. First, Claim 13 provides the recommendations to a school official by reciting: a school official computer system configured to receive the feedback data from the analysis and feedback module, wherein the feedback data comprises recommendations to a school official for enhancing student performance on subsequent performance evaluations. Donahue, in contrast, provides mathematical feedback within a tutorial system that automatically creates a second lesson based on the results of the first lesson. See Donahue, e.g., Abstract. Donahue's mathematical feedback within the tutorial system does not disclose recommendations to a school official for enhancing student performance on subsequent performance evaluations.

In the Office Action, the Examiner cites paragraphs [0059] and [0075] of Donahue as disclosing a system configured to receive feedback data including recommendations to a school official. However, the cited sections of Donahue do not disclose providing recommendations to a school official. Donahue's mathematical feedback describes a system designed to eliminate human interaction so that nothing is received by a school official. As such, Donahue's mathematical feedback does not disclose a school official computer system configured to receive the feedback data as claimed by Applicant.

Second, in a portion of Donahue not cited against Claim 13, paragraphs [0060]-[0062] disclose a teacher login so that a teacher can access a user's profile or lessons. However, the teacher login is not the same as providing the claimed recommendations to a school official for enhancing student performance on subsequent performance evaluations, because Donahue discloses a login for a teacher for optional access to the system, but not a school official computer system configured to receive the feedback data as claimed by Applicant. As stated by Donahue, "the tutorial system is designed to be automated such that little or no teacher interaction is required." Donahue, paragraph [0060]. As such, Donahue does not disclose this feature of Claim 13.

Therefore, Applicant respectfully submits that Donahue fails to disclose an analysis and feedback module configured to receive the student performance data from the education module and generate feedback data by performing an analysis of the student performance data and a school official computer system configured to receive the feedback data from the analysis and feedback module, wherein the feedback data comprises recommendations to a school official for enhancing student performance on subsequent performance evaluations.

For all of the reasons discussed above, the Donahue reference does not teach or suggest each and every element of Claim 13. The UCI reference does not cure the deficiencies in the Donahue reference. Therefore, the combination of Donahue and UCI do not teach or suggest each and every element of Claim 13. Accordingly, Applicant respectfully requests withdrawal of this rejection and allowance of Claim 13.

Patentability of Independent Claims 19 and 24

Independent Claims 19 and 24 were rejected under § 103(a) over Donahue in view of U.S. Patent No. 6,514,084 (Thomas). Amended Claims 19 and 24 recite, in part: comparing the passing score of the student to at least one score obtained from at least one subsequent quiz and determining whether the student is authorized to progress to a next task of a curriculum or whether the student needs assistance from an instructor based on the comparison. Claims 19 and 24 have support at least in Figure 29 of the Specification.

As discussed above, Donahue discloses a computerized tutorial system (Figure 1, item 10) with mathematical system feedback to form a first or second lesson based on the profile or the test results of the first lesson.

Donahue does not disclose the features of Claims 19 and 24 for at least the following reasons. First, Donahue does not compare a student's passing score to another score of that student, as recited in Claims 19 and 24: comparing the passing score of the student to at least one score obtained from at least one subsequent quiz. Instead, in Donahue, if a student receives a passing score, then the student continues to the next lesson. See, e.g., Figures 1-2. Donahue does not disclose this feature because Donahue does not disclose comparing a student's passing score to another score of the student.

In the Office Action, the Examiner cites paragraph [0061] of Donahue as disclosing comparing a student's passing score to another score of the student. However, paragraphs [0060] - [0061] disclose that a teacher can access a user's profile or lessons. Accessing the user's profile or lessons is not the same as comparing the student's passing score to another score of a subsequent quiz.

Second, since Donahue does not make this comparison, Donahue cannot use the result of this comparison to determine if the student can progress to the next task or if the student needs assistance from an instructor, as recited in Claims 19 and 24: determining whether the student is authorized to progress to a next task of a curriculum or whether the student needs assistance from an instructor based on the comparison.

In the Office Action, the Examiner cites paragraph [0061] of Donahue as disclosing using the result of this comparison to determine if the student can progress to the next task or needs assistance from an instructor. However, paragraphs [0060] - [0061] disclose that a teacher can

access a user's profile or lessons, and not using the comparison to determine if the student can progress to the next task or needs assistance from an instructor.

Therefore, Applicant respectfully submits that Donahue fails to disclose comparing the passing score of the student to at least one score obtained from at least one subsequent quiz and determining whether the student is authorized to progress to a next task of a curriculum or whether the student needs assistance from an instructor based on the comparison.

For all of the reasons discussed above, the Donahue reference does not teach or suggest each and every element of Claims 19 and 24. The Thomas reference does not cure the deficiencies in the Donahue reference. Therefore, the combination of Donahue and Thomas do not teach or suggest each and every element of Claims 19 and 24. Accordingly, Applicant respectfully requests withdrawal of this rejection and allowance of Claims 19 and 24.

#### Patentability of Independent Claim 23

Independent Claim 23 was rejected under § 103(a) over U.S. Publication No. 2004/033475 (Mizuma) in view of U.S. Patent No. 6,484,010 (Sheehan). The Office Action does not provide an element by element description of how acts of the method are disclosed by Mizuma and Sheehan. The Office Action states that some of the features of Claim 23 are described in Mizuma and Sheehan, but Applicant respectfully submits that, even *arguendo*, if the statements in the Office Action about some of the elements of Claim 23 are true, they still do not provide a disclosure or teaching of each element of the claimed invention.

Claim 23 has support at least in Figure 28 of the Specification. The features of Claim 23 are discussed below in the order which the elements are presented in Claim 23.

For the first three elements, the Office Action does not show how they are disclosed by the applied art. As stated above, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. Here, the cited art does not appear to teach or suggest all of the claimed features, and therefore does not render Claim 23 obvious.

The fourth claimed element recites: testing an initially designed game of the mathematical concept to obtain a progress curve of game scores. For the fourth element, the Office Action states that "Mizuma et al do not specifically disclose how the process curve is originated." Then,

the Office Action states that “Sheehan discloses a method of determining proficiency scaling and diagnostic assessment including first developing a proficiency model, and then testing student’s observed item responses to determine the consistency with the model (Col. 6 Lines 27-30).” Applicant respectfully disagrees.

The Office Action states that column 6, lines 27-30 of Sheehan discloses how a progress curve is originated. This cited section of Sheehan checks whether student responses are consistent with an estimated student proficiency module, as stated by Sheehan:

The Tree-Based estimation strategy involves first constructing a strong model of student proficiency and then testing whether individual students’ observed item response vectors are consistent with that model. Sheehan, column 6, lines 27-30.

Based on this cited section, the Office Action states that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made (...) to first construct a model of student proficiency and then test the model against individual student data, thereby creating a proficiency model that is strong and applicable for a plurality of individual students.”

In Sheehan, the student proficiency module estimates the probability that the student will correctly answer a question. Sheehan, col. 6, ln. 34-37. Then, students’ answers are compared to the proficiency module to test the module for consistency with the students’ answer. Col. 6, ln. 45-49. However, Sheehan does not obtain a progress curve of game scores as claimed by Applicant. Sheehan’s proficiency module shows the probability that a student will answer correctly, but does not show progress. Sheehan’s students’ responses are answers to questions, and again do not show progress. Further, Sheehan does not disclose obtaining game scores as claimed by Applicant. As such, Sheehan does not teach or suggest the claimed element of: testing an initially designed game of the mathematical concept to obtain a progress curve of game scores.

Similar to the first three elements, the Office Action does not address the fifth element. The fifth element recites: analyzing the progress curve to determine whether it indicates successful learning and retention of the mathematical concept. As stated above, to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. Here, the cited art does not appear to teach or suggest all of the claimed features, and therefore does not render Claim 23 obvious.



It appears that the Office Action indicates that Mizuma discloses the sixth through eleventh elements by stating that "Mizuma et al. disclose a progress curve of test scores and administering diagnostic tests and comparing the diagnostic test scores to the progress curve test scores, and then making adjustments to the progress curve or the diagnostic tests based on a comparison of the scores (Paragraph 71)." Applicant respectfully disagrees. The six through eleventh elements of Claim 23 recite the following features:

- comparing a score on the initially designed game with a score on the basic spatial temporal test to determine whether the game score is commensurate with the test score;
- administering a diagnostic quiz of the mathematical concept to the student;
- comparing the game score to a score on the diagnostic quiz to determine whether the game score is commensurate with the diagnostic quiz score;
- determining adjustments to the game or the diagnostic quiz based on the comparison of the game score to the diagnostic quiz score;
- redesigning the game based on the adjustments to the game or the diagnostic quiz;
- and
- integrating the redesigned game into an educational curriculum.

In contrast, paragraph [0071] of Mizuma discusses adjusting progress goals in a progress goal database when a student is progressing faster or slower than anticipated. Adjustment of progress goals as discussed in Mizuma is not the same as any of the above elements, including the claimed element: "comparing a score on the initially designed game with a score on the basic spatial temporal test to determine whether the game score is commensurate with the test score" because Mizuma is not determining whether a game score and test score are commensurate.

For all of the reasons discussed above, the Mizuma reference does not teach or suggest each and every element of Claim 23. The Sheehan reference does not cure the deficiencies in the Mizuma reference. Therefore, the combination of Mizuma and Sheehan do not teach or suggest each and every element of Claim 23. Accordingly, Applicant respectfully requests withdrawal of this rejection and allowance of Claim 23.

### **Dependent Claims**

Applicant respectfully submits that Applicant does not necessarily agree with the characterization and assessments of the dependent claims made by the Examiner, and Applicant believes that each claim is patentable on its own merits. The dependent claims are dependent either directly or indirectly on one of the above-discussed independent claims. Applicant respectfully submits that pursuant to 35 U.S.C. § 112, ¶4, the dependent claims incorporate by reference all the limitations of the claim to which they refer and include their own patentable features, and are therefore in condition for allowance. Therefore, Applicant respectfully requests the withdrawal of all claim rejections and prompt allowance of the claims.

### **No Disclaimers or Disavowals**

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

### **CONCLUSION**

In view of the foregoing remarks, Applicant respectfully submits that the claims of the above-identified application are in condition for allowance. However, if the Examiner finds any impediment to allowing all claims that can be resolved by telephone, the Examiner is respectfully requested to call the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

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Respectfully submitted,

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